Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**The Immune Response: Web Analysis and Teaching Opportunity**

Ms. Ottolini, AP Biology, 2012-2013

***Directions:*** *You and your group members will be assigned a particular topic relating to the human immune system. You will research your topic at the following web site:* [*http://www.niaid.nih.gov/topics/immunesystem/pages/whatisimmunesystem.aspx*](http://www.niaid.nih.gov/topics/immunesystem/pages/whatisimmunesystem.aspx) *. In the space corresponding to your topic below, summarize the information from the website in FOUR bullet points. You may include a diagram as one of your bullet points, if you think this is the best way to depict your concept. You will be presenting your summary to the class and filling in information relevant to all other topics listed below during the presentations.*

|  |  |
| --- | --- |
| **Topic** | **Summary** |
| 1. What is the immune system? | 1. a network of cells, tissues, and organs that defend the body against micro invasions.  2. if it malfunctions it can cause diseases  3. cells release fluids to keep out invaders and keep up immune systems  4. its microscopy and genetic blueprints allowed scientist to study T Cells and B cells more in depth. |
| 1. Self and non-self | 1. self refers to cells belonging the body  2. non-self refers to cells that are foreign to the body  3. antigens trigger immune responses because they are foreign substances  4. autoimmune disease- when the immune system mistakes self for non self and launches an attack against itself  5. allergies are caused when the immune system responds to a harmless foreign substance( ragweed pollen) |
| 1. The structure of the immune system | 1. lymphoids are places in the body that make white blood cells  2.There are two types of white blood cells: T cells and B cells  3. White blood cells travel throughout the body through blood vessels  4. The spleen takes all the pathogens and destroys them |
| 1. B cells | 1. B cells are a type of lymphocyte (white blood cell)  2. they secrete antibodies into the body’s fluids  3. each B cell is programmed to make a specific antibody  4. IgM (an example antibody) is used to kill bacteria |
| 1. T cells | 1. T cells have receptors on their surface that see antigens on infected cells  2. Helper T cells signal the entire specific immune response  3. Killer T cells attack infected or cancerous cells |
| 1. Phagocytes and their relatives | 1. white blood cells that swallow/digest microbes and other foreign particles  2. Macrophages rid the body of worn out cells  3. Certain types of macrophages (antigen-presenting cells, APC’s) are used to display antigens to Helper T cells to initiate the specific immune response |
| 1. Mounting an immune response | 1. Most common disease causing microbes are bacteria, viruses, and parasites  2. Microbes must move past the skin, which provides a barrier  3. The digestive and respiratory tracts are often portals of entry for microbes |
| 1. Immunity: Natural vs. Acquired | 1. An immune response can be sparked by infection and immunization by vaccines  2. babies can receive antibodies from maternal breast milk that can help protect them  3. Natural immunity = nonspecific  Acquired immunity = specific |
| 1. Disorders | 1. Allergies = when the immune system has a “false alarm”  2. Autoimmune diseases = t cells and antibodies attack the body’s own cells  3. Immune Complex – antibodies cluster together and get trapped in body organs  4. Immune Deficiency – missing one or more parts of the immune response (inherited or due to infection, ex: HIV) |
| 1. Transplants | 1. Immune system suppression is necessary for the body to accept transplant tissues which are technically “non-self”  2. 1 in 100,000 people are an antigen-match (can transplant to one another  3. bone marrow transplant can assist in regenerating immune cells |
| 1. Research Frontiers | 1. monoclonal antibody technology makes it possible to mass produce specific antibodies  2. made by injecting organism with target antigen and fusing B cells with other long-lived cells  3. The antibodies of the organism are transferred to humans which transfers immunity against that antigen  4. used in diagnostics to detect diseases |